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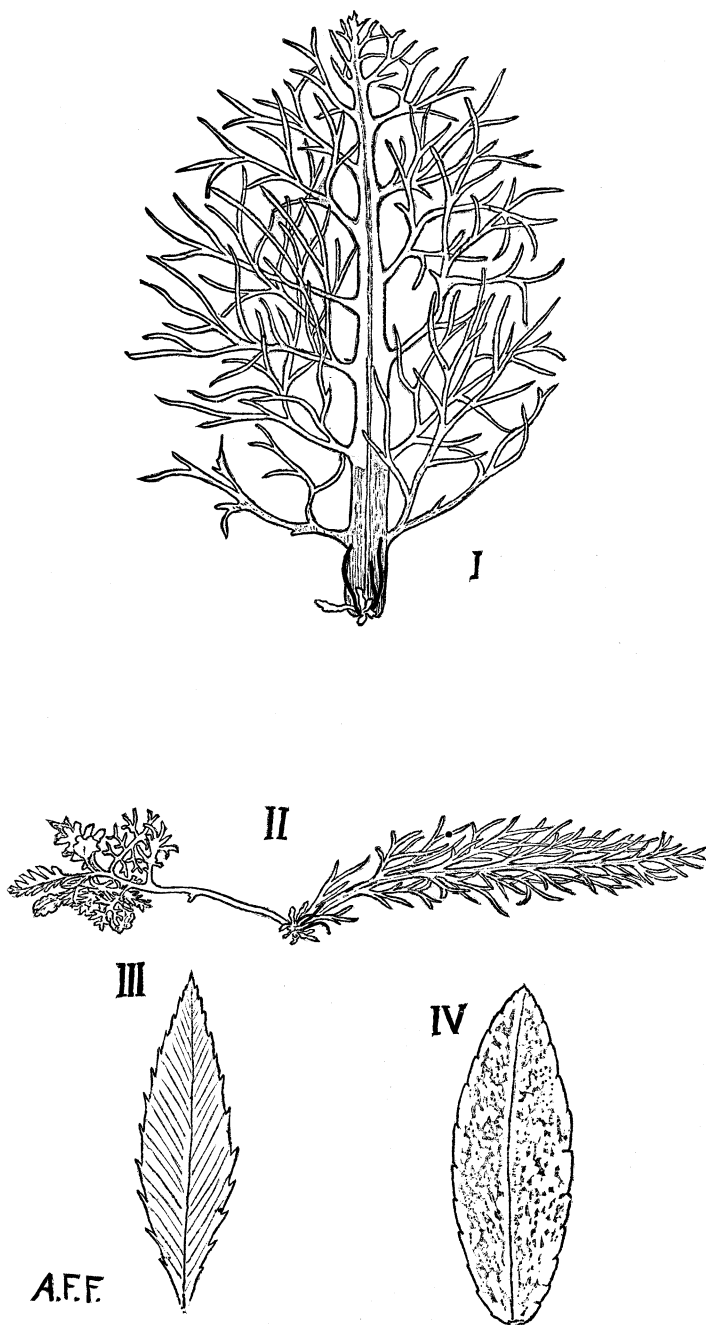
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## Botanical Notes.

Plate XCIV.

In the September number of the Botanical Gazette for 1881 a note is published on a peculiar method of budding in *Nasturtium lacustre*. Having had doubts as to the correct interpretation of the facts, this plant has since been re-examined and the accompanying figures prepared. The plant is aquatic; its lower leaves are pinnately dissected and immersed, the upper leaves are more simple, usually ovate-oblong, and emersed, although towards the close of the flowering season all leaves are apt to be more or less under water. About the middle of August the pinnate leaves break off and float on the surface of the water. At their base, in the place corresponding to the axil, a few very small leaves appear in a cluster, from which a few days later a branch begins to develop, in a direction opposite to the parent leaf, at the end of which a cluster of leaves forms a rosette, which floats on the surface of the water. From the very first a number of roots appear, which grow along the upper surface of the floating parent leaf in a direction towards its apex. This growth of the roots up the inclined base of the petiole where it must be exposed to the light was different from what has been observed elsewhere in the growth of roots, and this led to a re examination of the plant. It would seem a much more natural course of events if the roots would immediately bend over the edges of the petiole and seek as well as they could the darker side beneath. No such effort, however, seems to be made until the roots are from one-fourth to one-third of an inch in length. Soon after the new branch has grown so long and the base becomes so much thickened that the end to which the old leaf is attached gradually sags downward into the water, and in due time the roots have grown long enough to touch the bottom and fasten the plant. The old leaf simply decays. It is now quite certain that the roots do not derive food from the parent leaves, but why they should seek the upper surface seems very strange.

It has been customary to notice from time to time the autumn flowering of our spring plants. Perhaps, considering the regularity with which the warmer seasons of autumn, called Indian summer, come to our northern States from year to year, it were just



*Nasturtium lacustre*.

as well to consider the autumn flowering of some species as in the regular course of events. This is especially true of the violets. There is a place near North Attleboro, Massachusetts, where *Viola lanceolata* and *Viola canina*, var. *Muhlenbergii*, grow in great profusion. Not a year passes that I do not gather hundreds of blossoms from this locality towards the last weeks of September and the first of October. I expect to find them in blossom then, and should be surprised if I did not. They are not in such great profusion as in spring, of course, but are still quite common. In the same way, along the middle of October, *Viola pedata* is found in considerable abundance along some localities near Assawompsett Pond near Middleborough, Massachusetts. Other species have been invariably found but never in great numbers: *Viola primulæfolia* and *Viola cucullata*, which are found during the last weeks of September at North Attleboro, Massachusetts. *Viola striata* I have seen in blossom at Granville, Ohio, during the autumn of 1885, but never had occasion to look for the same again. Two species of violets, which from their frequency in spring I should have found in their respective haunts in autumn if they were in flower, *Viola sagittata* and *Viola pubescens*, I have never discovered in flower at that time of the year. It is not an uncommon feature of certain of the fall violets not to develop all their petals typically. This is especially true of *Viola lanceolata*, and in a certain measure of *V. cucullata*. Although most of the blossoms appear to be perfectly normal, those developed in colder weather show a tendency of the lateral and upper petals to become abortive, so that the lower petal in one flower may be well developed, the lateral petals may be reduced to one-third their normal size, and the upper petals may be visible only after the surrounding sepals have been dissected away. It will be noticed that in the process of this abortion those petals which are most necessary to guide the insects to the honey are aborted last. The semi-aborted petals have also a tendency to project straight forward in line with the sepals, and not to expand as in ordinary flowers, *in effect* increasing the size of the lower petal with which they are thus made contiguous.

A few plants were found in blossom this year which do not

show the same regularity in their autumn blossoming. Well developed blossoms of *Aquilegia Canadensis* were found near North Attleboro, Massachusetts, during the first weeks of October. *Geranium maculatum* was found at the same locality in September and August. *Corydalis sempervirens* appears more regularly near North Attleboro, Massachusetts, with thickened leaves, the petioles and stems almost succulent, and greenish, poorly developed flowers, of which a few occasionally reach their normal development. Autumnal blossoming is no new botanical feature, yet it seems worth while to place these notes on record in order that eventually it may be determined what plants are thus affected by our Indian summer, to what extent, and with what regularity.

AUG. F. FOERSTE.

Fig. 1. Leaf with a few small leaves and three roots as its base.

Fig. 2. Leaf with three roots and a number of small leaves at its base, from among which a branch has developed.

Fig. 3. Leaf at base of flowering racemes.

Fig. 4. Ordinary and usually emersed leaf.

### Remarks upon Color as a Distinguishing Feature of Certain Species of Plants.\*

By JOSEPH F. JAMES.

In considering the various points used in characterizing species of animals and plants, there is no one feature regarded as of less value and importance than color. The color of the epidermis and of the nacre of some species of *Unio*, is very uncertain. The colors of the black bass vary with its surroundings. Birds change their plumage and animals their pelage in winter so that it is different from what it is in summer. In the plant world occasional variations from the normal occur, so that white lobelias instead of blue, or white-flowered red clovers are not uncommon. But color in certain other and mostly small genera, is an important and frequently almost the sole distinction, certainly the one most easily perceived and recognized. As instances of this I shall cite a few examples.

In the district covered by Gray's Manual there are three spe-

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\*Read before the Botanical Club A. A. A. S., at the Toronto Meeting, Aug. 29-Sept. 3, 1889.